



**Periphyton
Stormwater
Treatment Area
(PSTA)
STA-1E**

**April 20, 2010
Eunice Ford**

TOC Meeting



**10 ppb
TP**



Agenda

- Purpose
- Background
- Chronology of PSTA
- Funding & Expenditures
- PSTA Location
- Data Collection & Results
- PSTA Current Status
- Concerns with PSTA Continuance
- Agency Views
- Discussion

Purpose

The purposes of this item on the TOC agenda is to provide the Technical Oversight Committee (TOC) with data and information on the Corps' Periphyton Stormwater Treatment Area (PSTA) design test at STA-1E and to seek input from members of the TOC on the continuation or termination of PSTA testing at STA-1E.

Background

- 1992 – SFWMD contracted Brown and Caldwell to identify and rank supplemental technologies. In follow-up study, PSTA was one of six technologies tested.
- WRDA 1996 – Congress authorized Corps construction of STA-1E.
- Nov 2003 – The Jacksonville District obtained approval for field scale PSTA design.
- Oct 2005 – Transfer of STA -1E to SFWMD

Chronology of PSTA

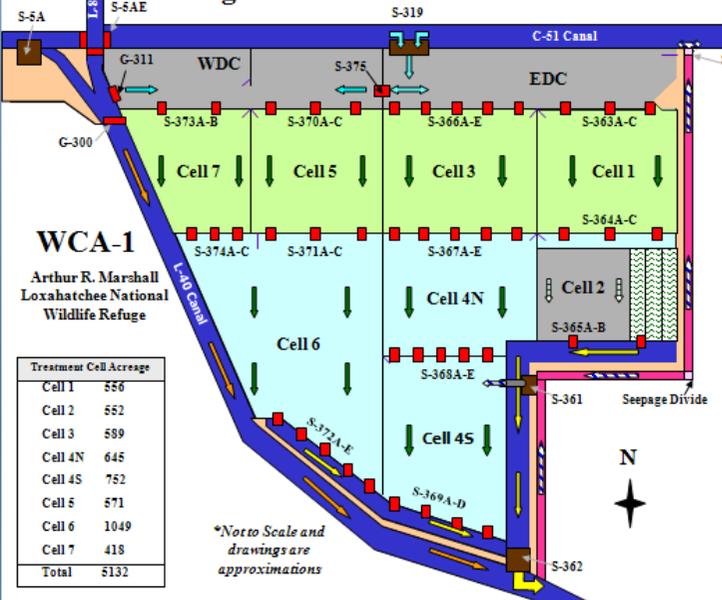
- Florida International University Cooperation Agreement: 16 Apr 2001
- Portland State University Cooperation Agreement: 26 Nov 2003
- Flying Cow Road small scale testing: 2003 – 2005
- Field Scale Construction in STA – 1E: Dec 2005 – Oct 2006
- Complete Field Scale Construction: Oct 2006
- Initial filling to establish Periphyton mat: Jul 2007
- 3 months of data collection in PSTA: Oct 2008 – Dec 2008
- No data collection due to drought and operational constraints from Jan 2008 – Jan 2010
- Recommence testing and data collection: 2 Feb 2010

Funding & Expenditures

- Cost to date - \$13M vs. original cost estimate of \$5M
- Current cost per year - \$2M
- Original construction of PSTA cells - \$4.3M

STA-1E Structures, Flow, &

Long Term Enhancements*

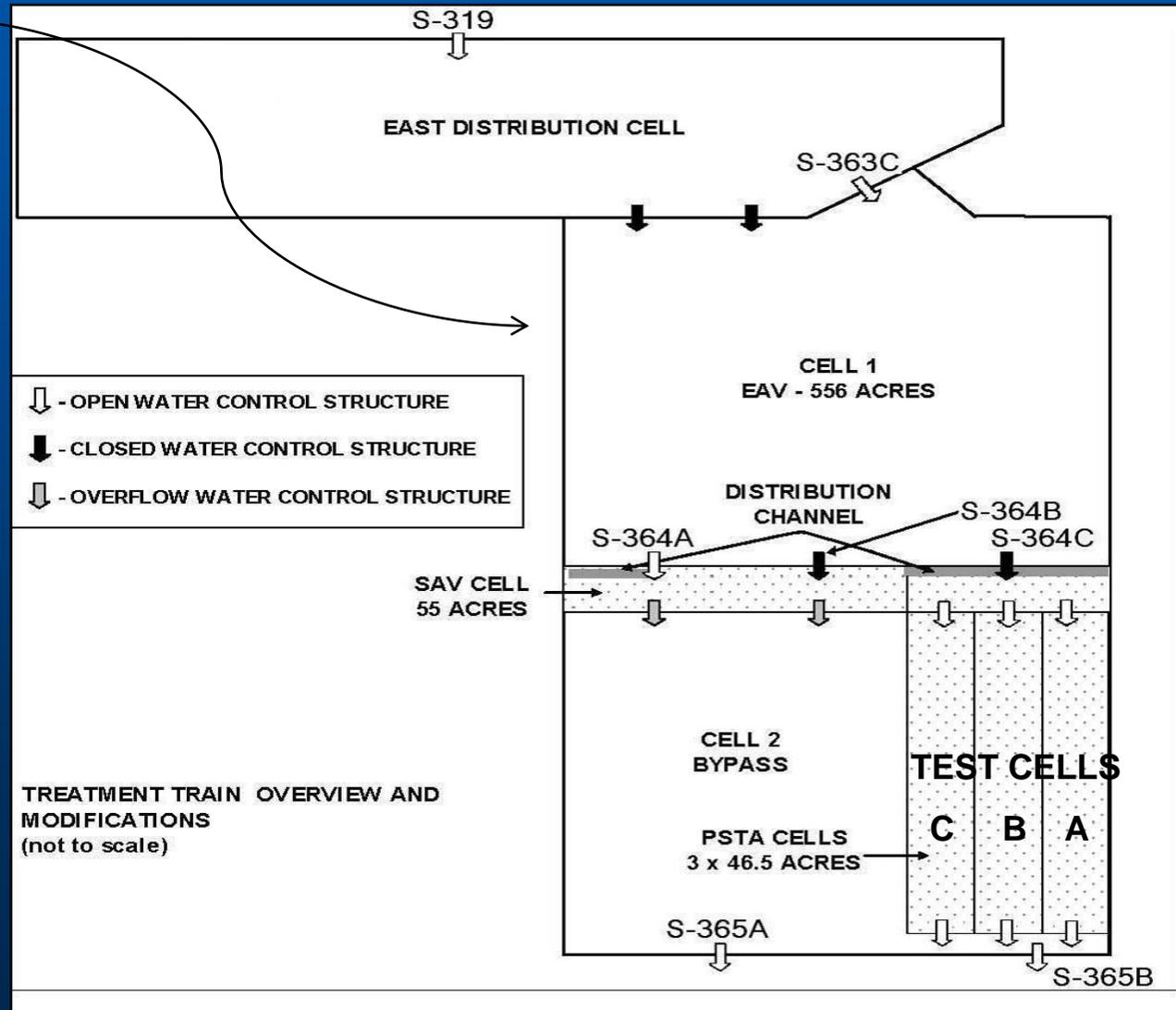


WCA-1
Arthur R. Marshall
Loxahatchee National
Wildlife Refuge

Treatment Cell Acreage	
Cell 1	556
Cell 2	552
Cell 3	589
Cell 4N	646
Cell 4S	752
Cell 5	571
Cell 6	1049
Cell 7	418
Total	5132

**Not to Scale and drawings are approximations*

PSTA Location

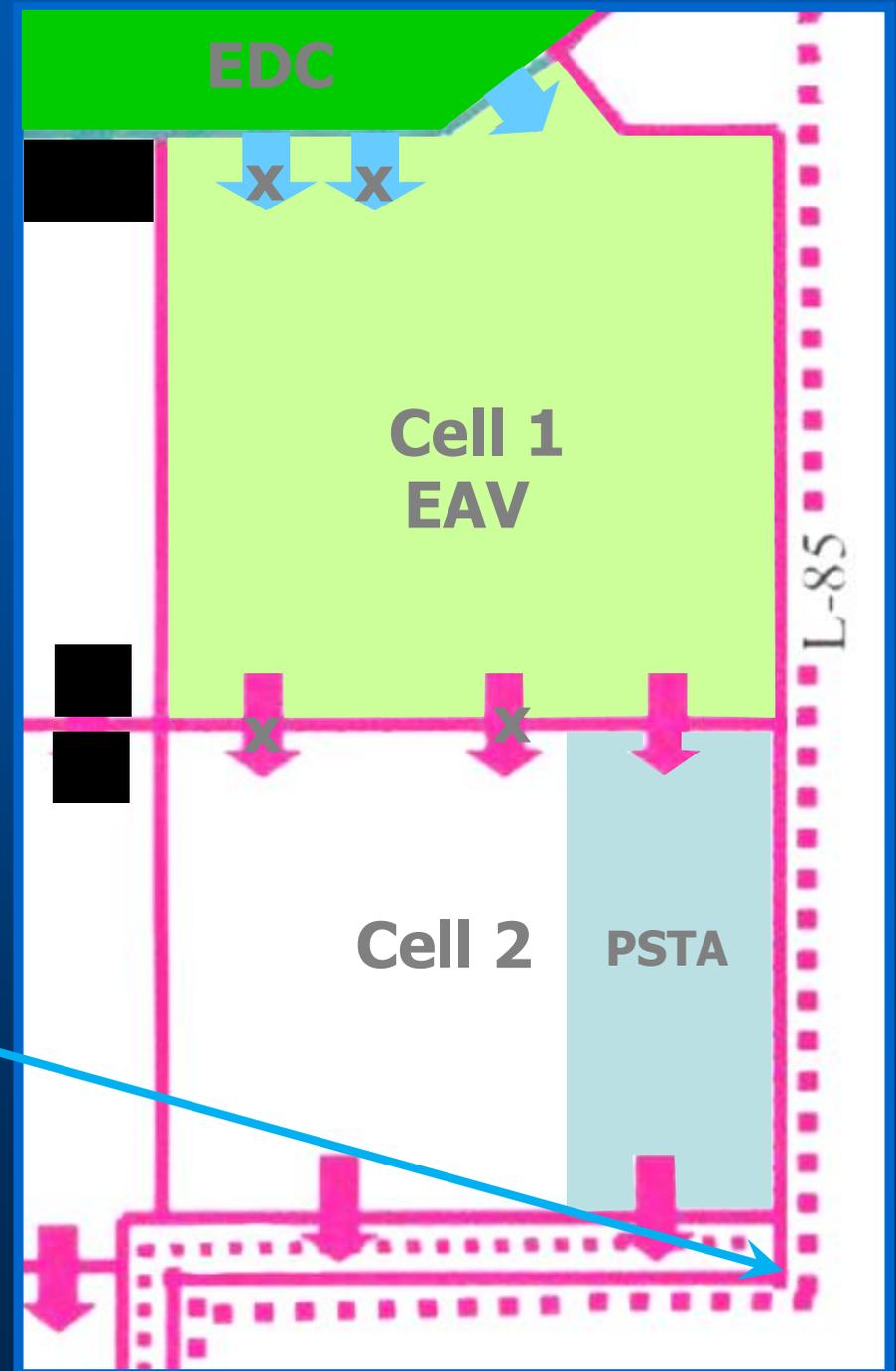


PSTA Location

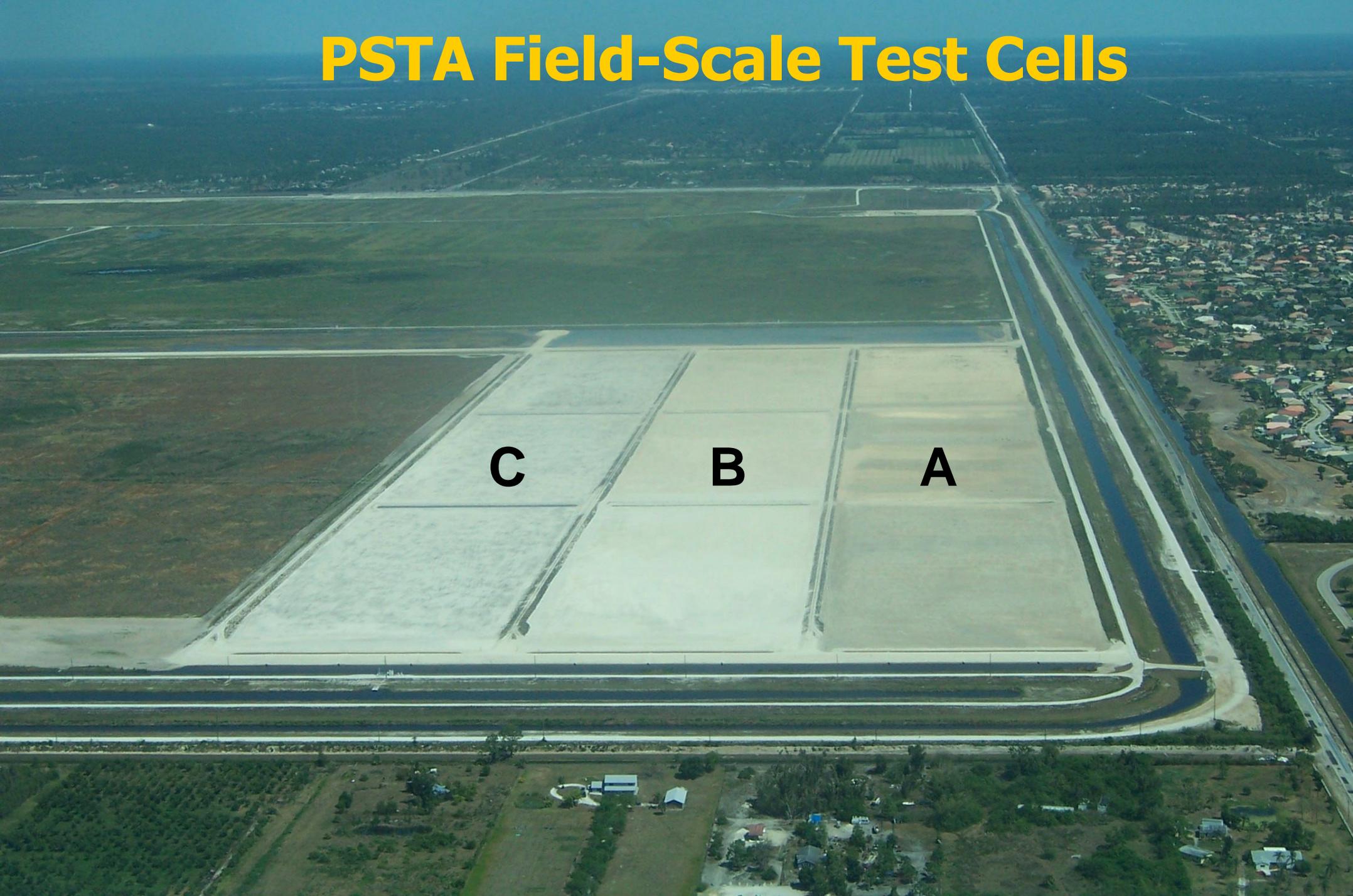
PSTA Location

S-377 Location

This is a gated culvert on the seepage canal currently under repair



PSTA Field-Scale Test Cells

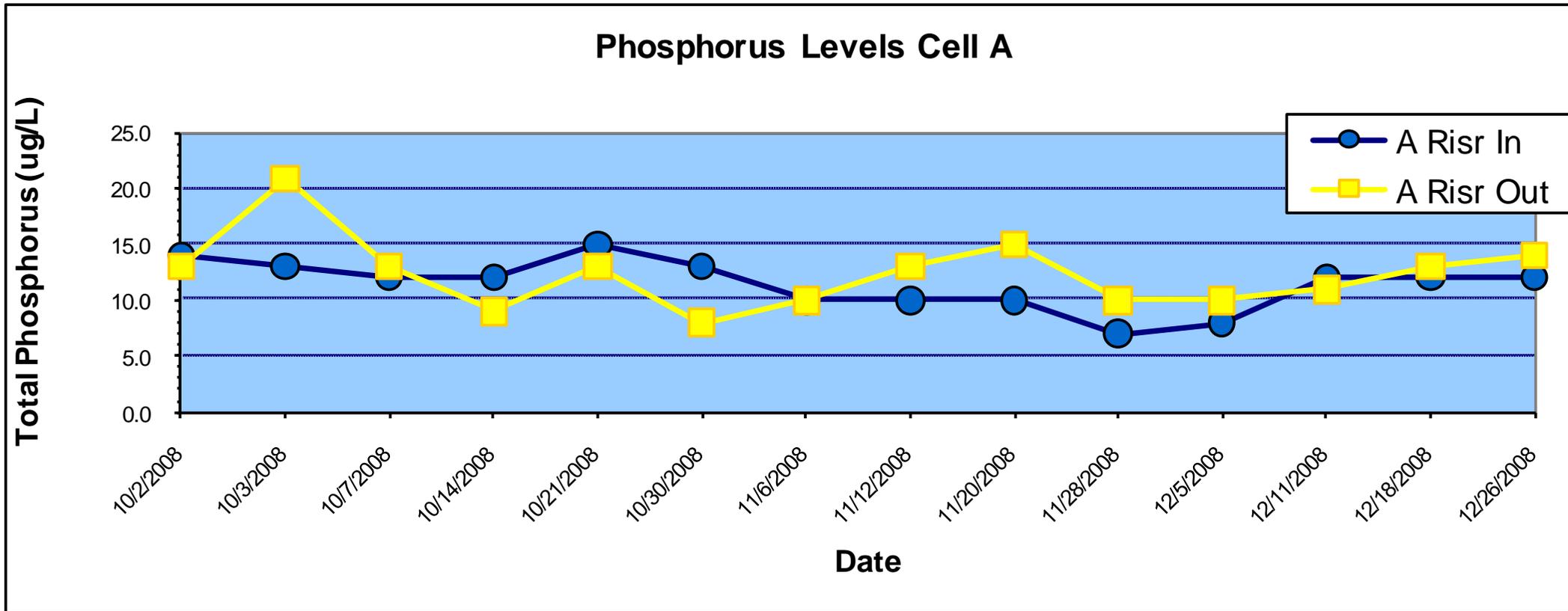
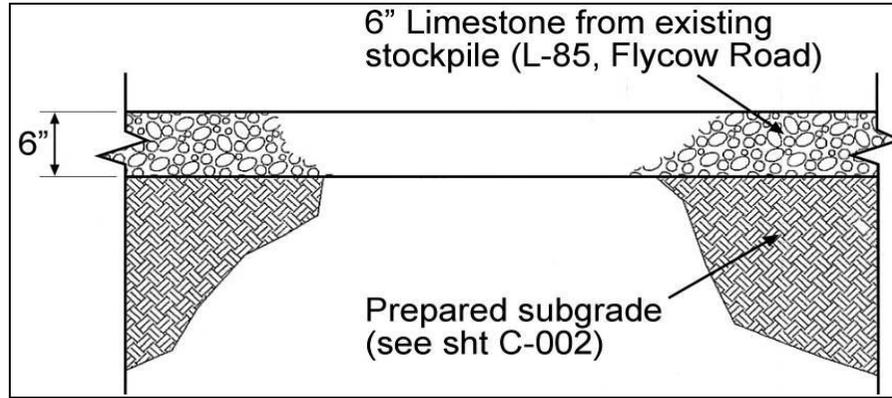


C

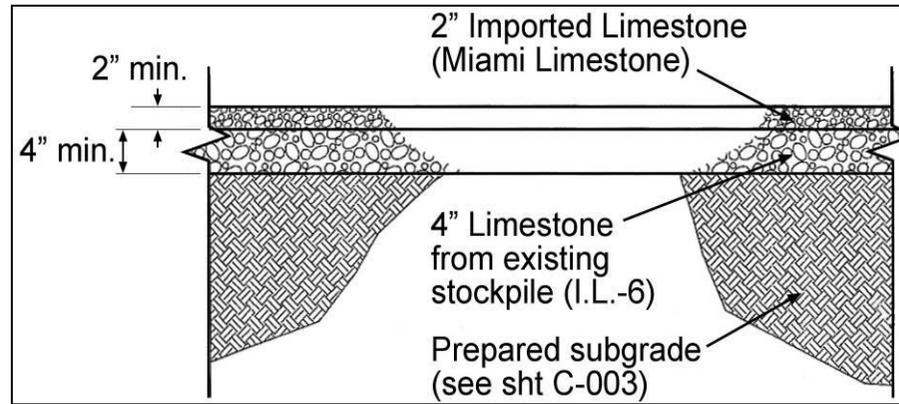
B

A

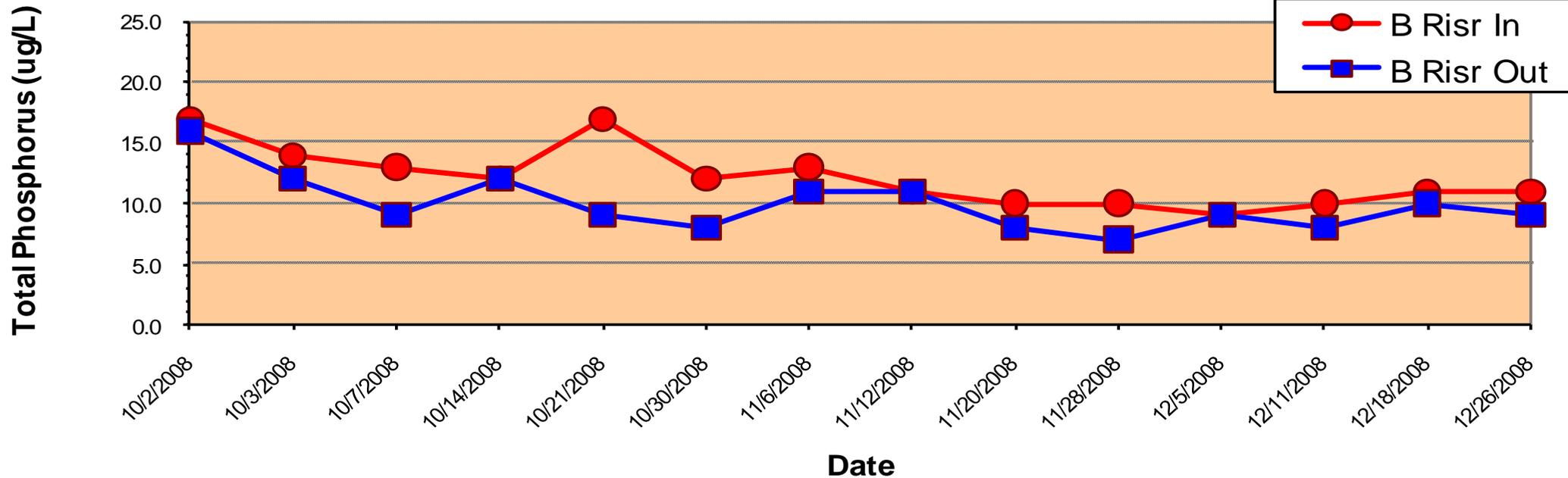
Data Collection & Results



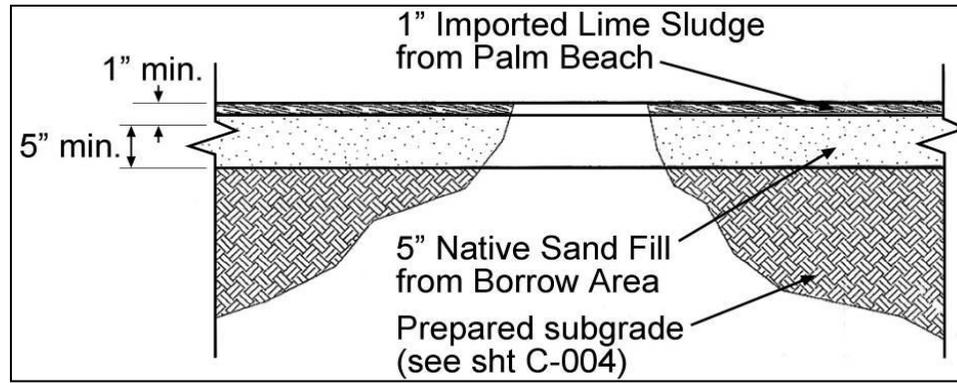
Data Collection & Results



Phosphorus Levels Cell B

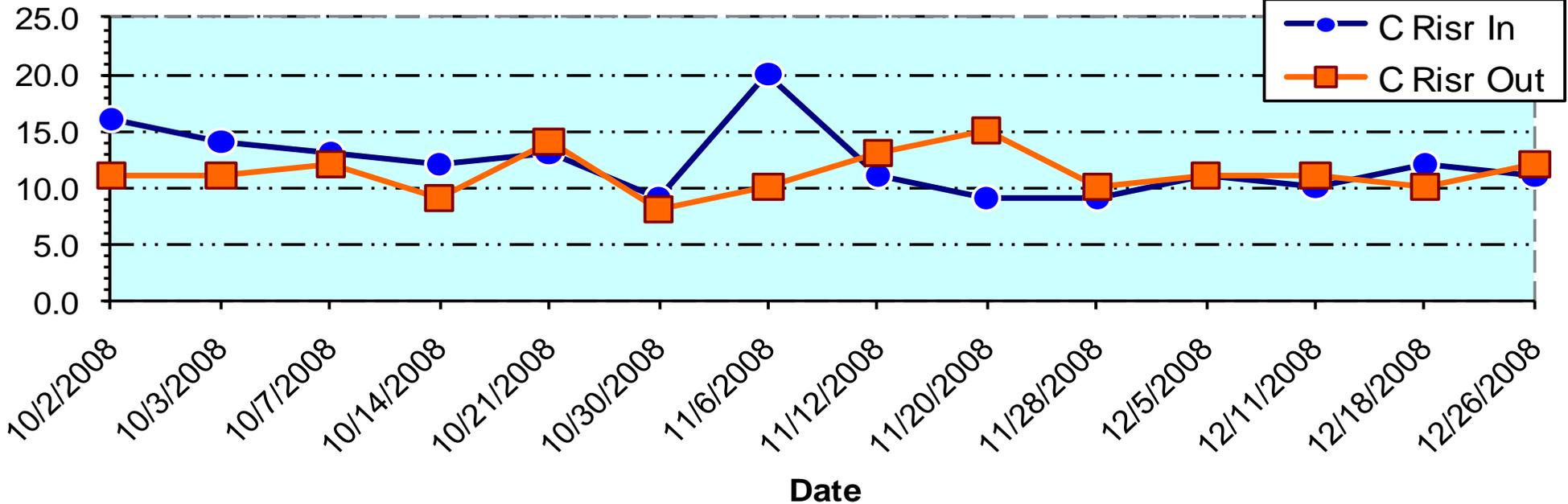


Data Collection & Results



Phosphorus Levels Cell C

Total Phosphorus (ug/L)



PSTA Current Status

- Cell 1 and 2 of STA – 1E will not be turned over to SFWMD until the PSTA testing is complete and if necessary, the infrastructure for the field test is deconstructed.
- Field data collection:
 - Currently only 3 months of data have been collected (Oct 08 – Dec 08)
 - The current program of testing is scheduled to complete after 18 months of data have been obtained (possibly as early as Apr 2011)
- Flying Cow Road: Currently Flying Cow Road (small-scale test) is in minimal operation with only cell 4 operating in order to demonstrate / evaluate longevity.

Concerns with PSTA Continuance

- External variables beyond the control of the Corps can hinder or prevent continuous operation of the test
 - Water supplied by local sponsor
 - Hurricanes
- PSTA hinders the ability of the local sponsor to use the entire STA as it was designed
- SFWMD PSTA testing program may address the scientific uncertainties associated with evaluating the potential for PSTA implementation at a larger scale

PSTA Facility Removal After Testing Complete

- What is required to conclude the PSTA field test, if the decision is made to terminate
 - From decision to Award of Contract – approximately 6 months
 - Removal of government equipment
 - Removal of the internal levees – approximately 6 months
 - Decommissioning of the Flying Cow Road Facility – concurrent with levee removal
 - Construction costs – approximately \$1.5M - \$2M
 - Turn over of the Eastern flow way to SFWMD
- Data collection in PSTA could continue until the contract is awarded to remove the facility

Agency Views

(SFWMD, DOI, FDEP, and EPA)

- TOC participants are asked to provide their opinion on the following questions:
 - Is it desirable for the Corps to continue the STA-1E PSTA design test?
 - Is the PSTA project duplicating SFWMD PSTA efforts?
 - Are the benefits of PSTA testing desirable over a reduction in STA-1E non-PSTA operational capacity (and what is the reduction in operational capacity)?
 - Can the existing STA system's performance be meaningfully improved long term with the PSTA systems installed near the outflows of the STAs?
- The Corps plans to consider opinions of stakeholders to determine whether or not to continue the PSTA design test in STA-1E.

Questions ?